
Overview

CALFED Flood Protection Opportunities

The CALFED Bay-Delta Program is developing a long-term comprehensive plan that will restore ecological health and improve water management and protection of beneficial uses of the Bay-Delta system. Specific actions will address Bay-Delta problems in ecosystem quality, water quality, levee system vulnerability, and water supply reliability. Many of these can also improve flood protection in the system.

The attached map shows some of the Program elements which promote flood protection while also meeting other Program objectives. Following are brief descriptions of these elements.

Delta Levee/Channel Improvements - The majority of the land within the Delta is below sea level. Approximately 1100 miles of existing levees encircle different tracts of lands to form "islands" used for agriculture, habitat for important terrestrial species, towns, and infrastructure. These levees also provide a significant link in protecting the water supply reliability for 2/3 of California's water users. Many of these levees do not meet high standards for flood protection and the Bay-Delta system faces an unacceptably high risk of inundation of Delta islands due to potential levee failure. Improving levees by building them higher and stronger will significantly improve flood protection and provide new opportunities for habitat restoration and protection. Channel improvements, in conjunction with the levee improvements, allow for carrying larger floods. The **North Delta Program** is one example of levee and channel improvements that has been under study for several years.

Setback Levees - Many existing levees are located at the edge of river channels. Constructing new levees farther away from the channel provides for a wider area to carry flood waters. This wider flood plain will temporarily store some flood waters and lower flood flows to downstream areas. The wider flood plain also creates new opportunities for habitat restoration.

Bypass - Existing bypass channels were constructed years ago along portions of the Sacramento and San Joaquin Rivers to divert some of the flood flows out of the rivers and thus relieving pressure on the main channel. The combination of the rivers and the bypasses can carry more water than the rivers alone. Improvements to the existing San Joaquin Bypass by construction of new **setback levees** would allow for carrying even more flow and new opportunities for habitat restoration. An extension of this bypass to the Delta could reduce flood risk along the lower San Joaquin River.

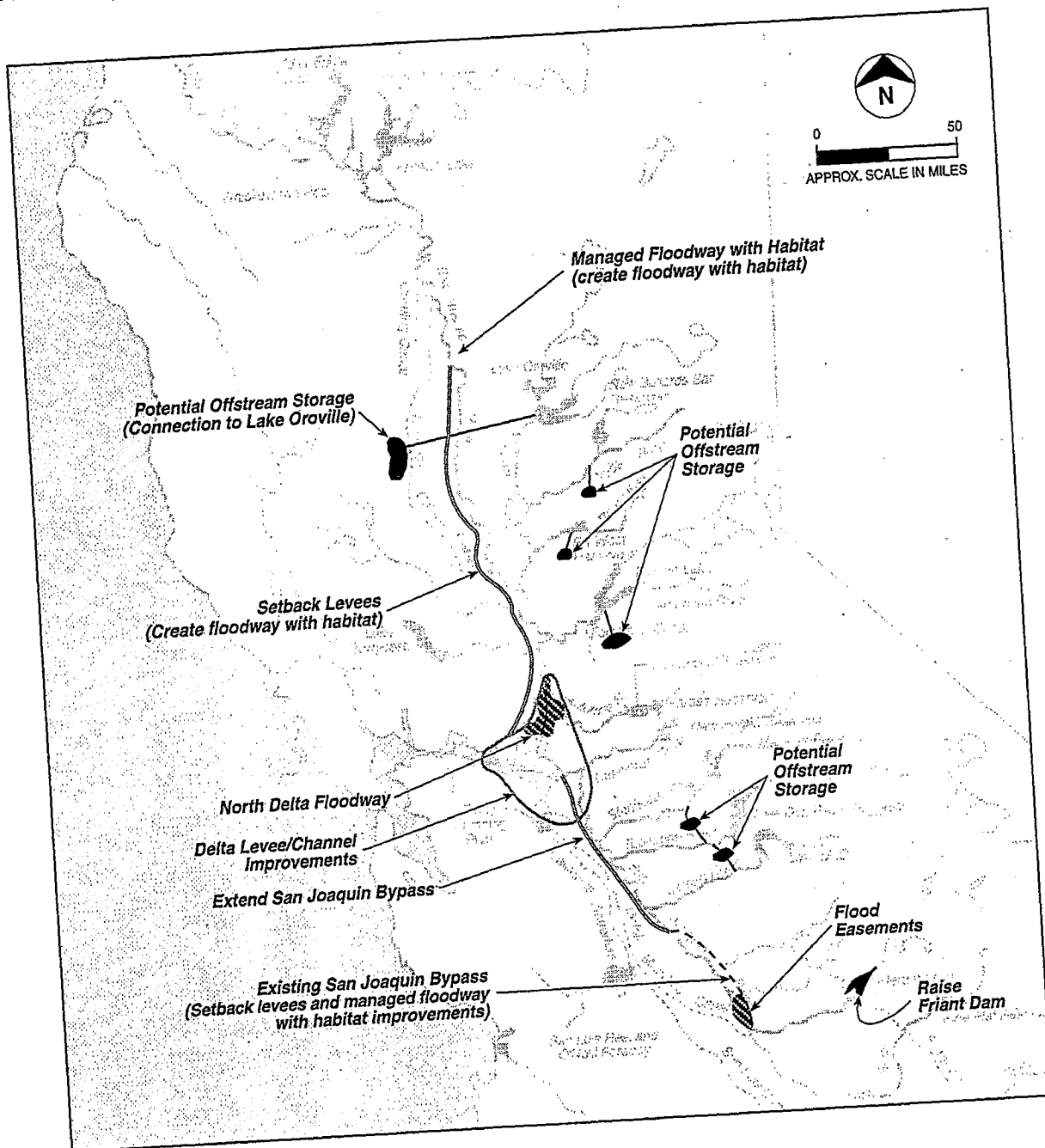
Managed Floodways - Rather than constraining rivers to flow within a strict corridor width, the river can be allowed to meander throughout the floodway. This use of the full natural floodway results in better temporary flood storage and reduced flood flows to downstream areas. The floodway also creates new opportunities for habitat restoration.

Flood Easements - The Program could purchase the rights to periodically flood some areas and thereby eliminate the need for expensive levees or other improvements to protect the areas from flooding. The flooding of designated areas would temporarily store flood waters and lessen the flooding treat to downstream areas. The areas covered by flood easements would continue with their traditional land use during non-flooding times.

Flood Control Storage - Major storage reservoirs on the Sacramento and San Joaquin Rivers and tributaries currently have storage dedicated for flood control. Raising key dams, such as Friant Dam, could provide new water for water users and the environment and additional storage for flood control. Storing water at times of high inflow can reduce flows to downstream areas subject to flooding.

Offstream Storage - Potential offstream storage reservoirs would be filled by diverting water from the main rivers at times of high flow resulting in some reduction in downstream flood risk. These reservoirs would primarily store water for multiple water uses including environmental flows. Depending on how the offstream reservoirs are designed to operate in conjunction with existing reservoirs, some new system-wide flood storage could be developed. For instance, due to the increase in offstream storage for beneficial uses, other reservoirs on the rivers could be held lower (more flood storage available) in the winter without jeopardizing overall water deliveries. In addition, there will be opportunities to move water from onstream reservoirs (e.g. Oroville) at the start of the flood season into offstream storage; improving flood storage while saving water.

Calfed Bay Delta Program



Program Elements Which Promote Flood Protection
Along With Other Program Objectives

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**Potential Flood Control Linkages
for the CALFED Bay-Delta Program**

1. What should be the relative roles of offstream storage versus onstream flood storage in the system?
2. Can a combination of flood management actions, such as set back levees with wide, managed floodways which incorporate habitat enhancements and accommodate agriculture, flood bypasses and additional offstream storage keyed to increased flood reservations on existing reservoirs, provide fuller, more integrated flood protection?
3. Can designated floodways and low set back levees be used on the Cosumnes river to increase flood protection?
4. Can set back levees be used on the Mokelumne River to increase flood protection?
5. Can set back levees and tidal wetlands be used at McCormick Williamson Tract, New Hope Tract, Canal Ranch and Bract Tract to increase flood protection?
6. Should a weir and designated floodway at Bouldin Island be incorporated in the flood protection plan?
7. Should a designated floodway adjacent to the Lower San Joaquin River down to Middle River, followed by dredging of a low flow channel be used in the flood protection plan?
8. Can a set back levee along one side or the other of the Sacramento River from Chico Landing to Verona provide additional flood protection along with enhanced habitat values?
9. Should a set back levee along Steamboat Slough and Miner Slough be part of the flood protection plan?
10. Can flood easements and riparian easements on the Sacramento River from Red Bluff to Chico Landing be included in the flood protection plan?

11. Can set back levees along the west bank of the Sacramento River from Freeport to Rio Vista be included in the flood protection plan?
12. Can offstream storage near the Tuolumne River provide additional flood protection as well as fishery enhancement flows?
13. Can offstream storage off the Sacramento River (such as the Sites Reservoir or the Tomes Newville Reservoir), combined with an enlarged Shasta Dam, provide additional flood protection as well as fishery enhancement flows?
14. Can offstream storage off the Yuba River be incorporated in the flood protection plan to provide flood protection as well as fishery enhancement flows?
15. Can an enlarged Friant Dam be incorporated in the flood protection plan to provide flood protection as well as fishery enhancement flows?
16. Should environmentally beneficial reconstruction of diversion on Butte and Mill Creeks be incorporated in the flood protection plan?
17. How can the long-term flood protection plan mitigate the loss of spawning gravels caused by the flood?